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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/809,274	03/16/2001	Yasumi Sago	K-1968	4972

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EXAMINER

ALEJANDRO MULERO, LUZ L

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/809,274

Applicant(s)

SAGO ET AL.

Examiner

Luz L. Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-18 is/are pending in the application.
- 4a) Of the above claim(s) 3, 4 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5-7, 9, 10 and 12-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/28/05 has been entered.

Election/Restrictions

Note that claims 3-4 and 8 continue to be withdrawn as noted in the office action mailed on 3/10/04. Furthermore, claims 15-17 are also withdrawn since claim 15, as amended, depends on withdrawn claim 4.

Claim Objections

Claims 10, 12 and 18 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. With respect to claims 10 and 12, note that the independent claim requires that the front board is contacted to the main body, however, the dependent claims requires that a sheet be disposed between the main body and the front board. Therefore, the dependent claims

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fail to further limit the independent claim. Regarding claim 18, note the independent claim already requires such limitation.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear how a sheet can be disposed between the main body and the front board, as required by the dependent claims, when the independent claim requires that the front board is contacted to the main body.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 14 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Lenz et al., US 5,569,356.

Lenz et al. shows the invention as claimed including a plasma-enhanced processing apparatus comprising: a process chamber for processing a substrate therein having a wall; a gas introduction system that introduces process gas into the process chamber; plasma-generation means that generates plasma in said process chamber by applying energy to said process gas; a substrate holder that holds said substrate in said process chamber; and an opposite electrode disposed in said process chamber to face said substrate held by said substrate holder, and including a front board 30 facing the substrate holder, a clamping plate 34 disposed at a front side of the front board close to the substrate holder so that an area of the front board not covered by the clamping plate is exposed to plasma, and a main body 32/40 installed on the wall of the process chamber and disposed at a back side of the front board opposite to the front side, so that said front board is clamped between the clamping plate and the main body, said clamping plate being fixed so that said clamping plate presses said front board toward the main body and a back surface of the front board is contacted and pressed uniformly onto the main body, the front board being fixed to the main body by pressure of the clamping plate toward the main body with no screw penetrating the front board (see, for example, fig. 2 and its description). It is inherent to one of ordinary skill in the art that the apparatus of Lenz et al. will comprise a pumping system communicating with said process chamber for exhausting gas from said process chamber.

Regarding claims 2 and 14, note the presence of a cooling mechanism 52 that cools said front board via said main body and is capable of preventing increase of temperature of the front board in operation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

With respect to claim 5, note the presence of protector 48 covering a front surface of said clamping plate so that said front surface of the clamping plate is not exposed to said plasma.

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Claims 5-7, 9-10, and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shunichi, JP 05-267235 in view of Lilleland et al., U.S. Patent 6,073,577.

Lenz et al. is applied as above but does not expressly disclose a protector covering a front surface of the clamping plate and flush with the front board, so that the front surface of the clamping plate is not exposed to the plasma, a sheet made of carbon inserted between the front board and the main body. Lilleland et al. discloses a plasma apparatus comprising a protector 17 covering a front surface of a clamping plate 18 which is flush with a front board of an upper electrode 10 (see, fig. 1, and col. 4-line 49 to col. 8-line 18). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Lenz et al. so as to further comprise the claimed protector flush with the front board as taught by Lilleland et al. because this would effectively and efficiently limit the plasma damage to the upper electrode. Additionally, Lilleland et al. discloses an elastomeric joint composed of a polymer (which includes carbon) between a support frame and a silicon showerhead electrode (see abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Lenz et al. so as to include an elastomeric joint between the front board and the main body as suggested by Lilleland et al. because this allows movement between the front board and the main body in order to account for thermal expansion during processing (see abstract, lines 9-13).

Additionally, note that the configuration of the claimed protector and the front board is a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed protector is significant (see *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966)).

With respect to claim 7, note that the front board in Lenz et al. is made of single crystal silicon (see col. 5, lines 40-42).

Regarding the claimed screwing torque of claim 9, the claims of the instant application are directed to the apparatus and since an apparatus is being claimed as the instant invention, the method of how the apparatus is manufactured is not considered to be the matter at hand. The apparatus of Lenz et al. can be manufactured in a variety of ways to form the apparatus as shown in the Figures and text.

Response to Arguments

Applicant's arguments with respect to claims 1-2, 5-7, 9-10, 12-14, and 18 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 571-272-1430. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Luz L. Alejandro
Primary Examiner
Art Unit 1763

May 2, 2005